

## REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and following remarks. Claims 26 and 27 are amended. No new matter is introduced as the amendments incorporate limitations from dependent claims. Claims 50, 52, 53 and 55 are cancelled. Claims 26-29 and 31-49, 51 and 54 remain pending.

### Rejection under 35 U.S.C. §103(a) of Claims 26-29, 31-44, 47 and 50-55 over Zhang

Claims 26-29 and 31-44, 47 and 50-55 are rejected under 35 U.S.C. §103(a) as allegedly obvious over Zhang et al., *Analytica Chimica Acta* 388, 71-78 (1999) (hereinafter “Zhang”). Claims 50, 52, 53 and 55 are cancelled, rendering their rejection moot. Applicants respectfully traverse this rejection. Zhang uses a 5 mm diameter glassy carbon electrode. The claims to microelectrodes and microneedles, as amended, are not disclosed or suggested by Zhang. One of ordinary skill would not be motivated by Zhang to dramatically reduce the size of the microelectrode or microneedle to the claimed dimensions.

The concurrently filed Declaration of Professor Nicholas Dale states that the method of Zhang for sol gel deposition on 5mm diameter glassy carbon electrodes would not work to deposit sol gel on the claimed microelectrodes or microneedles of the present invention, as the volume of sol gel would run or drip off the microelectrode or microneedle and sol gel would not be retained to cross-link and gelate on the surface. These microelectrodes or microneedles can be 100 times smaller than the 5 mm diameter glassy carbon electrode. Further, in spite of their reduced size, these microelectrodes or microneedles are up to 100 times more sensitive, and perform differently than other electrodes (see Figures 1 and 2 and page 21 (results section) of the patent application). These are unexpected results that demonstrate enhanced sensitivity with reduced size.

Applicants respectfully assert that in view of these structural and functional differences between the 5 mm diameter disc electrodes of Zhang and the microelectrodes or microneedles of the present invention, that Zhang provides no motivation, suggestion or expectation of success to one of ordinary skill in the art to derive Applicants’ invention, as claimed. Further, the unexpected results using the microelectrodes or microneedles of the present invention

demonstrating increased sensitivity in spite of reduced size further provide evidence of non-obviousness of the present invention, as claimed.

Applicants respectfully assert that the rejection of 26-29 and 31-44, 47, 51 and 54 under 35 U.S.C. §103(a) as allegedly obvious over Zhang has been overcome and request its withdrawal.

Rejection under 35 U.S.C. §103(a) of Claims 45, 46, 48 and 49 over Zhang in view of Collison

Claims 45, 46, 48 and 49 are rejected under 35 U.S.C. §103(a) as allegedly obvious over Zhang in view of Collison et al., (Analytica Chimica Acta 397 (1999) pp 113-121 (hereinafter "Collison").

Applicants respectfully traverse. Collison is cited for teaching the organic modification of silicates from APTEOS. Collison does not cure the deficiencies of Zhang which were discussed in the preceding section. Collison, like Zhang, uses 5 mm diameter glassy carbon electrodes (Abstract and page 114, section 2.1, lines 13 and 14), which are much larger than Applicants claimed microelectrodes or microneedles. (See also the Declaration of Professor Dale attesting to this fact). Professor Dale's Declaration further notes that Collison spin coats 30 ul of sol gel on the surface of these 5 mm diameter electrodes which would be incompatible with microelectrodes and microneedles as discussed above for Zhang. Further, as declared by Professor Dale, Collison cures sol gel at 80 degrees C for 1 hour which would denature enzymes, rendering useless the potential biosensor application for enzymes. Applicants assert that nothing in Collison, together with Zhang, provides motivation or a suggestion to one of ordinary skill in the art to derive the Applicants' claimed microelectrodes or microneedles, which are up to 100 times smaller and 100 times more sensitive. Professor Dale's Declaration also attests to this statement.

Applicants respectfully assert that the rejection of claims 45, 46, 48 and 49 under 35 U.S.C. §103(a) as allegedly obvious over Zhang in view of Collison has been overcome and request its withdrawal.

### **CONCLUSION**

An allowance of the claims is respectfully solicited. The Examiner is respectfully invited to contact the undersigned attorney at 404.745.2470 to discuss any matter related to the present application. This response is filed together with a the Declaration of Professor Dale, Professor Dale's Curriculum Vitae, a petition for a two month extension of time and the required fee. No additional fees are believed due; however the Commissioner is hereby authorized to charge any additional fees that may be required or to credit any overpayment to Deposit Account number 11-0855.

Respectfully submitted,

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